

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

9

REMARKS

Entry of this Request for Reconsideration is proper because it does not raise any new issues requiring further search by the Examiner, narrows the issues on appeal, and is believed to place the present application in condition for immediate allowance.

Allowable Subject Matter

Applicant gratefully acknowledges that **claims 3-5, 8, 9, 12-14, and 25** would be allowable if rewritten in independent form. However, Applicants respectfully submit that all of the claims (i.e., claims 1-25) are allowable, for the reasons set forth below.

Claims 1-25 are all the claims presently pending in the application.

A complete listing of the claims is provided above for the Examiner's convenience.

No claims have been amended and no new matter has been added.

Claims 1, 2, 6, 7, 10, and 11 stand rejected on prior art grounds under 35 U.S.C. § 103(a) as being unpatentable over Yutaka, et al. (U.S. Patent No. 5,664,163) in view of Peaslee, et al. (U.S. Patent No. 5,265,203).

Claims 15-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Zhao, et al. (U.S. Patent No. 6,405,267).

Claims 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Tidwell (U.S. Patent No. 6,437,789B1).

Claims 21-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Epard, et al. (U.S. Patent No. 5,241,625).

These rejections are respectfully traversed in the following discussion.

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

10

I. THE CLAIMED INVENTION

Applicants' invention, as disclosed and claimed, relates to a data transferring apparatus (and method) for transferring transfer packets each including one or more transfer data as objectives of transfer from a first apparatus to a second apparatus, wherein each transfer data includes commands indicating processes against a preliminarily assigned area.

In conventional devices, a raster interface is used to transfer image data, for example, from a computer to a display apparatus, which requires a large amount of data. However, when an ultra-high resolution display apparatus is used, there is a possibility that the data transferring capacity of the communication channel between the computer and the display apparatus will not be sufficient (e.g., see specification at page 1, lines 7-13).

The claimed invention, on the other hand, solves the problems associated with such an image data stream being transferred from a computer to an ultra high resolution display apparatus (e.g., see specification at page 1, lines 17-18, and page 2 lines 1-2).

For example, in an illustrative, non-limiting aspect of the invention as defined, for example, in independent claim 1, a data transferring apparatus for transferring transfer packets each including one or more transfer data as objectives of transfer from a first apparatus to a second apparatus, the each transfer data including commands indicating processes against a preliminarily assigned area, includes a scheduler for merging a plurality of drawing commands meeting a certain requirement and for translating the merged drawing commands into a single drawing command, thereby reducing a volume of the

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

11

transfer data, and a communication controller for generating transfer packets each including at least one of one or more the plurality of drawing commands whose amount is within a certain predetermined range and one or more the merged drawing commands. The communication controller transfers the generated transfer packets to the second apparatus.

Independent claim 2 recites somewhat similar features as claim 1 using “means-plus-function” language under 35 U.S.C. § 112, sixth paragraph.

In other exemplary aspects of the invention as defined, for example, by independent claims 7 and 11, a method includes merging a plurality of drawing commands meeting a certain requirement and translating the merged drawing commands into a single drawing command, thereby reducing a volume of the transfer data, generating transfer packets each including at least one of one or more the plurality of drawing commands whose amount is within a certain predetermined range and one or more the merged drawing commands, and transferring the generated transfer packets to the second apparatus.

II. THE PRIOR ART REJECTIONS

For the Examiner’s convenience, Applicants incorporate herein by reference in their entirety the traversal arguments set forth in the Amendment under 37 C.F.R. § 1.111 filed on September 24, 2004, the Amendment under 37 C.F.R. § 1.116 filed on March 14, 2005, and the Amendment under 37 C.F.R. § 1.111 filed on July 11, 2005.

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

12

A. Claims 1, 2, 6, 7, 10, and 11 stand rejected on prior art grounds under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee. Applicants respectfully traverse this rejection for at least the following reasons.

Independent claims 1, 2, 7, and 11

The Examiner argues that it would be obvious to combine Yutaka and Peaslee to arrive at the claimed invention (see Office Action at page 3, lines 12-14).

Applicants respectfully submit, however, that it would not have been obvious to combine Yutaka and Peaslee to arrive at the claimed invention. Moreover, assuming *arguendo* that a reasonable motivation existed for making the alleged combination, Applicants submit that the resulting combination of Yutaka and Peaslee, either individually or in combination, would not disclose or suggest all of the features of the claimed invention.

In the present Office Action, the Examiner alleges that Yutaka does disclose reducing a volume of the transfer data by translating the merged drawing commands into a single drawing command (see Office Action at page 2, paragraph 3).

Particularly, the Examiner alleges that “Yutaka describes translating the merged drawing commands into a single drawing command, thereby reducing a volume of the transfer data (Col. 2, lines 17-24; Col. 7, lines 1-13)” (see Office Action at pages 2 and 5, paragraphs 3 and 12, respectively). However, Applicants respectfully disagree with the Examiner’s interpretation of Yutaka for the following reasons.

In contrast to the Examiner’s position, Yutaka, in fact, describes putting multiple drawing instructions together into a “drawing instruction sequence” (e.g., see Yutaka at

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

13

Figure 6; see also column 7, lines 3-4), “in which the drawing instructions and the control instructions are arranged in the order of drawing and control procedures is transferred to the drawing device section” (e.g. see Yutaka at column 3, lines 31-34, column 16; lines 5-9).

However, in contrast to the Examiner’s stated position, this arrangement is NOT associated with a process to translate multiple drawing commands into a single drawing command, as claimed.

In comparison, independent claim 1 recites a data transferring apparatus for transferring transfer packets each including one or more transfer data as objectives of transfer from a first apparatus to a second apparatus, each transfer data including commands indicating processes against a preliminarily assigned area, the first apparatus including:

a scheduler for merging a plurality of drawing commands meeting a certain requirement and for translating said merged drawing commands into a single drawing command, thereby reducing a volume of said transfer data; and

a communication controller for generating transfer packets each including at least one of one or more said plurality of drawing commands whose amount is within a certain predetermined range and one or more said merged drawing commands,

said communication controller transferring said generated transfer packets to said second apparatus (emphasis added).

The Examiner also alleges that Yutaka addresses inefficient transfers of drawing instructions in the prior art (see Office Action at page 2, paragraph 3 and page 5, paragraph 12).

In contrast to the Examiner’s position, Yutaka, in fact, argues that inefficient transfers occur when a fixed-length packet is used to transfer drawing instructions (e.g., see Yutaka at column 2, lines 11-29; see also Figures 21A-22). Yutaka, however, solves this issue by

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

14

allowing control data to be transferred together with drawing data and by allowing DMA transfers in a variable length (e.g., see Yutaka at column 2, lines 30-33).

Applicants submit that the merge operation in the present application is fundamentally different from the transfer operation in Yutaka, which transfers drawing and control data together. The transfer operation in Yutaka simply puts multiple data (or instructions) together into a sequence of drawing instructions, but does NOT translate them into a single drawing command.

For the foregoing reasons, Applicants respectfully submit that the Examiner has mischaracterized the teachings of Yutaka, and thus, the Examiner's alleged modification of Yutaka clearly does not establish the obviousness of the claimed invention. Moreover, notwithstanding the Examiner's flawed interpretation of Yutaka, the claimed invention clearly is fundamentally different from Yutaka.

Turning to the Peaslee reference, the Examiner alleges that in Peaslee "data is merged in accordance with the mutual dependency of the instructions among themselves (Col. 5, lines 50-59)" (see Office Action at numbered paragraph 12, at page 6). However, Applicants respectfully disagree with the Examiner's interpretation of Peaslee.

According to Peaslee, "this involves scheduling (enabling) one or more of the six controlled subsystems, when all required inputs are available for current operation, and blocking (disabling) the controlled subsystem(s) when some other subsystem is utilizing its (their) current output" (e.g., see Peaslee at column 5, lines 54-59). This means that the

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

15

scheduler in Peaslee enables or disables subsystems, instead of merging data, in accordance with their input/output dependencies.

For example, if two subsystems use the same output, the scheduler enables only one of them at a time.

In comparison, the claimed invention can merge two drawing commands (e.g., a “*plurality of drawing commands*”) that affect the same drawing area into one command (e.g., “*a single drawing command*”), as recited, for example, in independent claim 1.

Thus, the present application clearly is fundamentally different from Peaslee and Peaslee does not make up for the deficiencies of Yutaka.

For the foregoing reasons, Applicants submit that Yutaka and Peaslee, either alone or in combination, do not disclose or suggest all of the features of independent claim 1.

Also, for somewhat similar reasons as those set forth above with respect to independent claim 1, Applicants submit that Yutaka and Peaslee, either alone or in combination, do not disclose or suggest all of the features of independent claims 2, 7 and 11.

For example, independent claim 2 recites a data transferring apparatus for transferring transfer packets each including one or more transfer data as objectives of transfer from a first apparatus to a second apparatus, each transfer data including commands indicating processes against a preliminarily assigned area, the first apparatus including:

means for merging a plurality of drawing commands meeting a certain requirement and for translating said merged drawing commands into a single drawing command, thereby reducing a volume of said transfer data;

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

16

means for generating transfer packets each including at least one of one or more said plurality of drawing commands whose amount is within a certain predetermined range and one or more said merged drawing commands; and
means for transferring said generated transfer packets to said second apparatus (emphasis added).

That is, claim 2 defines the invention in “means-plus-function” language. Thus, claim 2 properly should be interpreted to cover the specific arrangement of elements disclosed in the specification and drawings (and then “reasonable” equivalents under 35 U.S.C. § 112, sixth paragraph).

In comparison, none of the cited references discloses or suggests any structure, equivalents thereof, or identity of function necessary for the claimed “means for merging a plurality of drawing commands meeting a certain requirement and for translating said merged drawing commands into a single drawing command, thereby reducing a volume of said transfer data”, as recited in independent claim 2 and described in the specification and drawings.

Dependent claims 6 and 10

Applicants submit that dependent claims 6 and 10 also are patentable over the cited references by virtue of their respective dependencies from independent claims 2 and 7, as well as for the additional features recited therein.

For the foregoing reasons, Applicants respectfully submit that Yutaka and Peaslee, either alone or in combination, clearly do not disclose or suggest all of the features of claims

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

17

1, 2, 6, 7, 10, and 11. Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection of these claims.

B. Claims 15-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Zhao.

The Examiner alleges that Zhao combines drawing instructions that affect a same area for a predetermined short period of time on a frame buffer (see Office Action at page 5, lines 4-5). Applicants respectfully disagree with the Examiner's position for at least the following reasons.

That is, Zhao does not make up for the deficiencies of Yutaka and Peaslee.

For example, the actual combining operation of Zhao is completely different than the "merging" or "combining" of the claimed invention, as exemplarily defined by claims 15-17.

Zhao uses the address portion of commands to select a sort buffer, which stores commands for the same memory area in the order that the CPU originally wrote (e.g., see Zhao at column 2, lines 43-59). Because of this command sorting, Zhao can use a bus that combines multiple write operations to transfer data efficiently. Without using this command sorting, the write combine operation may change the order of data transfers that affect the same memory area, and hence, the write combine operation affects the consistency of the output from the graphics device (e.g., see Zhao at column 2, lines 21-40).

In comparison, in the claimed invention, the merging or combining operation is neither a sorting operation by the address nor a combining operation for efficient data

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

18

transfers. Instead, in the claimed invention, the first apparatus analyzes a sequence of graphics command and merges or changes them in such a way that that the amount of the data volume is reduced.

The claimed invention is capable of providing such novel and unobvious features, for example, because the first apparatus can have a command analysis routine (e.g., 340 in Figure 6) in the present application.

On the other hand, in Zhao, the first apparatus does not have such a device. Thus, Zhao can increase the data transfer efficiency through combining but actually does not reduce the amount of the data volume to be transferred between the two apparatuses.

In other words, Zhao clearly does not reduce the data volume, according to the claimed invention.

Moreover, as mentioned above, Yutaka and Peaslee also do not reduce the data volume.

Thus, Applicants submit that it would not have been obvious to combine Yutaka, Peaslee, and Zhao to arrive at the claimed invention. Further, even assuming *arguendo* that a reasonable motivation existed for combining these references in the manner alleged, Applicants submit that the resulting combination clearly would not disclose or suggest all of the features of the claimed invention, as defined by claims 15-17.

Thus, Applicants respectfully submit that Zhao clearly does not make up for the acknowledged deficiencies of Yutaka and Peaslee. Therefore, Applicants respectfully request that the rejection of claims 15-17 be reconsidered and withdrawn.

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

19

C. Claims 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Tidwell. For the following reasons, Applicants respectfully traverse this rejection.

Applicants submit that Tidwell does not make up for the deficiencies of Yutaka and Peaslee for several reasons.

For example, Tidwell describes that a dirty flag is set for a slot until data is written back to the DRAM (e.g., see Tidwell at column 7, lines 61-64). This dirty flag indicates that the slot contains pixels in an updated area on a frame memory.

In this regard, Tidwell teaches how to keep track of updated pixels as long as they can fit in the cache memory, which is a small subset of the frame memory.

Furthermore, it can be viewed that each slot in the cache memory can merge the results of multiple drawing commands, although the Examiner does not describe this aspect.

Applicants submit, however, that Tidwell does not analyze drawing (graphics) commands or translating them.

Instead, Tidwell merely checks the address of pixels from a drawing engine (graphics controller) along with flags for the corresponding slot to identify if the cache already has the pixels.

Thus, for example, Tidwell needs to execute all graphics commands before merging their outputs.

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

20

The present application, on the other hand, analyzes the dependency between graphics commands before executing them, so that it can omit executing some of them when they have a certain dependency.

Furthermore, Tidwell sends only pixels (no graphics or drawing commands) from the first apparatus to the second apparatus.

In comparison, according to the claimed invention, the first apparatus sends drawing commands to the second apparatus (e.g., see claim 20).

Thus, the claimed invention clearly has the advantage of reducing the volume of transferred data.

Moreover, Applicants submit that it would not have been obvious to combine Yutaka, Peaslee, and Tidwell to arrive at the claimed invention, since Yutaka, Peaslee, and Tidwell, either individually or in combination, which do not reduce the amount of the data volume to be transferred between the two apparatuses.

Thus, Applicants respectfully submit that Yutaka, Peaslee, and Tidwell, either individually or in combination, clearly do not disclose or suggest all of the features of the claimed invention, as alleged by the Examiner. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

D. Claims 21-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yutaka in view of Peaslee, and in further view of Epard.

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

21

Epard discloses that two apparatuses are connected via a communication medium and that the two apparatuses have a drawing engine with a dedicated frame memory. In Epard, the source computer system translates graphics commands to another set of graphics commands from which the destination computer can generate an identical image (e.g., see Epard at column 64, lines 59-68). This translation is done by a command-by-command basis (e.g., see Epard at column 64, lines 59-68).

This means that, in Epard, the first apparatus does not merge graphics command to reduce the amount of the data volume that the first apparatus transmits to the second apparatus.

Thus, Epard alone is not capable of performing the intended use of the present application.

Moreover, even assuming *arguendo* that it would have been obvious to modify Yutaka and Peaslee with the system configuration of Epard, the resulting combination still would not reduce the amount of data volume, as claimed.

Indeed, as the Examiner acknowledges in the present Office Action, Yutaka also has nothing to do with reducing the amount of data volume, according to the claimed invention.

Therefore, the alleged combination would have nothing to do with reducing the amount of data volume. That is, Epard clearly would not make up for the deficiencies of Yutaka and Peaslee, which also do not disclose or suggest reducing the amount of data volume.

U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

22

For the foregoing reasons, Applicants respectfully submit that it would not have been obvious to combine Yutaka, Peaslee, and Epard to arrive at the claimed invention.

Moreover, even assuming *arguendo* that it would have been obvious to combine these references, as alleged, Applicants respectfully submit that the alleged combination of Yutaka, Peaslee, and Epard would not disclose or suggest all of the features of the claimed invention, as defined by claims 21-24.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

III. CONCLUSION

In view of the foregoing, Applicants submit that claims 1-25, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

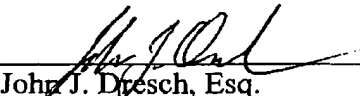
U.S. Serial No. 09/684,328
Attorney Docket No. JA919990169US1
(YOR.235)

23

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

Date: December 13, 2005



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CERTIFICATE OF TRANSMISSION

I certify that I transmitted via facsimile to (571) 273-8300 the enclosed Request for Reconsideration under 37 C.F.R. § 1.116 to Examiner Joni Hsu, Art Unit 2671, on December 13, 2005.


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